Developmental Biology

An International Journal Published under the Auspices of the Society for Developmental Biology

EDITOR-IN-CHIEF: Anthony P. Mahowald

ASSOCIATE EDITORS

Merton K. Bernfield
Ira B. Black
Peter J. Bryant
Charles P. Emerson, Jr.
David Epel
David Hirsh
Richard Hynes
William F. Loomis, Jr.
Rudolf A. Raff
Gerald M. Rubin
L. Dennis Smith
Davor Solter
Robert L. Trelstad
Virginia Walbot

EDITORIAL ASSISTANT: Linda L. Goldstein

ADVISORY EDITOR
Igor B. Dawid

VOLUME 94, 1982

ACADEMIC PRESS

New York London
Paris San Diego San Francisco São Paulo Sydney Tokyo Toronto

Copyright © 1982 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1982 articles are the same as those shown for current articles.

MADE IN THE UNITED STATES OF AMERICA

Contents of Volume 94

NUMBER 1, NOVEMBER 1982

Full Papers

CHIAKI KATAGIRI, YASUHIRO IWAO, AND NORIO YOSHIZAKI. Participation of Oviducal Pars Recta Secretions in Inducing the Acrosome Reaction and Release of Vitelline Coat Lysin in Fertilizing Toad Sperm 1

CLARKE R. SLATER. Postnatal Maturation of Nerve-Muscle Junctions in Hindlimb Muscles of the Mouse 11

CLARKE R. SLATER. Neural Influence on the Postnatal Changes in Acetylcholine Receptor Distribution at Nerve-Muscle Junctions in the Mouse 23

REINHARD F. STOCKER. Genetically Displaced Sensory Neurons in the Head of *Drosophila* Project Via Different Pathways into the Same Specific Brain Regions 31

DAVID G. CAPCO AND HERBERT JÄCKLE. Localized Protein Synthesis During Oogenesis of *Xenopus laevis*: Analysis by *in Situ* Translation 41

MASASUKE ARAKI, CHIZUKA IDE, TAKUMA SAITO, AND FUMIAKI SATO. Ultracytochemical Study on *in Vitro* Differentiation of Neural Retinal Cells of Chick Embryos 51

LAURENT MEIJER, MILES PAUL, AND DAVID EPEL. Stimulation of Protein Phosphorylation during Fertilization-Induced Maturation of *Urechis caupo* Oocytes 62

GEORGES SPOHR, WALTER REITH, AND MARCO CRIPPA. Structural Analysis of a cDNA Clone from *Xenopus laevis* Containing a Repetitive Sequence Element 71

HILDUR V. COLOT AND MICHAEL ROSBASH. Behavior of Individual Maternal pA^+ RNAs during Embryogenesis of *Xenopus laevis* 79

ULRICH SCHAFER, LYNN GOLDEN, LINDA E. HYMAN, HILDUR V. COLOT, AND MICHAEL ROSBASH. Some Somatic Sequences Are Absent or Exceedingly Rare in *Xenopus* Oocyte RNA 87

ANNICK MAUGER, MICHEL DEMARCHEZ, DANIEL HERBAGE, JEAN-ALEXIS GRIMAUD, MICHEL DRUGUET, DANIEL HARTMANN, AND PHILIPPE SENGEL. Immunofluorescent Localization of Collagen Types I and III, and of Fibronectin during Feather Morphogenesis in the Chick Embryo 93

PAUL N. BLACK, MILTON H. LANDERS, AND GEORGE M. HAPP. Cytodifferentiation in the Accessory Glands of *Tenebrio molitor*. VIII. Crossed Immunoelectrophoretic Analysis of Terminal Differentiation in the Postecdysial Tubular Accessory Glands 106

KAORU NIKI, HIDEO NAMIKI, SAKAE KIKUYAMA, AND KATSUTOSHI YOSHIZATO. Epidermal Tissue Requirement for Tadpole Tail Regression Induced by Thyroid Hormone 116

A. C. KATO AND M.-J. REY. Chick Ciliary Ganglion in Dissociated Cell Culture. I. Cholinergic Properties 121

C. R. BADER, D. BERTRAND, AND A. C. KATO. Chick Ciliary Ganglion in Dissociated Cell Culture. II. Electrophysiological Properties 131

GARY FREEMAN AND RICHARD L. MILLER. Hydrozoan Eggs Can Only be Fertilized at the Site of Polar Body Formation 142

THOMAS SKRIPSKY AND JOHN C. LUCCHESI. Intersexuality Resulting from the Interaction of Sex-Specific Lethal Mutations in *Drosophila melanogaster* 153

FELIX EPPER AND ROLF NÖTHIGER. Genetic and Developmental Evidence for a Repressed Genital Primordium in *Drosophila melanogaster* 163

BRYN STEVENS AND JOHN D. O'CONNOR. The Acquisition of Resistance to Ecdysteroids in Cultured *Drosophila* Cells 176

RALPH M. HECHT, SUSAN M. WALL, DON F. SCHOMER, JAIMIE A. ORÓ, AND ALLEN H. BARTEL. DNA Replication May Be Uncoupled from Nuclear and Cellular Division in Temperature-Sensitive Embryonic Lethal Mutants of *Caenorhabditis elegans* 183

MAX HAMBURGH, YOUNG KIM, C. S. RUSSELL, HOWARD ZAIFFE, DANIEL MONTALVO, LUIS RODRIGUEZ, AND LORENZO A. MENDOZA. Concanavalin A as a Peripherally Acting Inhibitor of Thyroxin-Mediated Metamorphosis in Amphibians 192

THOMAS DUCIBELLA, DEBORAH ANDERSON, JEFF AALBERG, AND WILLIAM C. DEWOLF. Cell Surface Polarization, Tight Junctions, and Eccentric Inner Cells Characterize Human Teratocarcinoma Embryoid Bodies 197

ROBERT C. BURGHARDT AND REBECCA L. MATHESON. Gap Junction Amplification in Rat Ovarian Granulosa Cells. I. A Direct Response to Follicle-Stimulating Hormone 206

S. WEISBROD, M. P. WICKENS, S. WHYTOCK, AND J. B. GURDON. Active Chromatin of Oocytes Injected with Somatic Cell Nuclei or Cloned DNA 216

TERRY L. THOMAS, ROY J. BRITTEN, AND ERIC H. DAVIDSON. An Interspersed Region of the Sea Urchin Genome Represented in Both Maternal Poly(A) RNA and Embryo Nuclear RNA 230

PETER J. M. VAN HAASTERT, WILLEM BIJLEVELD, AND THEO M. KONIJN. Phosphodiesterase Induction in *Dictyostelium discoideum* by Inhibition of Extracellular Phosphodiesterase Activity 240

G. S. MICHAELS, W. W. HAUSWIRTH, AND P. J. LAIPIS. Mitochondrial DNA Copy Number in Bovine Oocytes and Somatic Cells 246

Brief Notes

EDWARD J. CARROLL, JR., AND ANTON G. ENDRESS. Sea Urchin Fertilization Envelope: Uncoupling of Cortical Granule Exocytosis from Envelope Assembly and Isolation of an Envelope Intermediate from *Strongylocentrotus purpuratus* Embryos 252

MICHAEL SOLURSH, THOMAS F. LINSENMAYER, AND KAREN L. JENSEN. Chondrogenesis from Single Limb Mesenchyme Cells 259

Feature f-1

NUMBER 2, DECEMBER 1982

Full Papers

SHERRY L. ROGERS. Muscle Spindle Formation and Differentiation in Regenerating Rat Muscle Grafts 265

WAKOH TSUCHIYA AND YASUNOBU OKADA. Membrane Potential Changes Associated with Differentiation of Enterocytes in the Rat Intestinal Villi in Culture 284

CHRISTIANE S. AYER-LE LIEVRE AND NICOLE M. LE DOUARIN. The Early Development of Cranial Sensory Ganglia and the Potentialities of Their Component Cells Studied in Quail-Chick Chimeras 291

MICHAEL SOLURSH, KAREN L. JENSEN, CARL T. SINGLEY, THOMAS F. LINSENMAYER, AND REBECCA S. REITER. Two Distinct Regulatory Steps in Cartilage Differentiation .. 311

MICHAEL SOLURSH AND HIDEKI KATOW. Initial Characterization of Sulfated Macromolecules in the Blastocoels of Mesenchyme Blastulae of *Strongylocentrotus purpuratus* and *Lytechinus pictus* 326

JEAN LOUP DUBAND AND JEAN PAUL THIERY. Appearance and Distribution of Fibronectin during Chick Embryo Gastrulation and Neurulation 337

LILI ANGLISTER, IRA C. FARBER, AVRAHAM SHAHAR, AND AMIRAM GRINVALD. Localization of Voltage-Sensitive Calcium Channels along Developing Neurites: Their Possible Role in Regulating Neurite Elongation 351

ICHIO II, ICHIRO KIMURA, AND EIJIRO OZAWA. A Myotrophic Protein from Chick Embryo Extract: Its Purification, Identity to Transferrin, and Indispensability for Avian Myogenesis 366

R. LANE SMITH AND MERTON BERNFIELD. Mesenchyme Cells Degrade Epithelial Basal Lamina Glycosaminoglycan 378

PAUL H. TAGHERT, MICHAEL J. BASTIANI, ROBERT K. HO, AND COREY S. GOODMAN. Guidance of Pioneer Growth Cones: Filopodial Contacts and Coupling Revealed with an Antibody to Lucifer Yellow 391

MARCIA M. MILLER, RONALD GOTO, AND SUSAN D. CLARK. Structural Characterization of Developmentally Expressed Antigenic Markers on Chicken Erythrocytes Using Monoclonal Antibodies 400

MARIA N. VILLACORTA-MOELLER AND EDWARD J. CARROLL, JR. Sea Urchin Embryo Fertilization Envelope: Immunological Evidence That Soluble Envelope Proteins Are Derived from Cortical Granule Secretions 415

ALEX MAURON, LARRY KEDES, BARBARA R. HOUGH-EVANS, AND ERIC H. DAVIDSON. Accumulation of Individual Histone mRNAs during Embryogenesis of the Sea Urchin *Strongylocentrotus purpuratus* 425

ROBERT E. MAXSON, JR., AND FRED H. WILT. Accumulation of the Early Histone Messenger RNAs during the Development of *Strongylocentrotus purpuratus* 435

ANNETTE W. COLEMAN AND MARK J. MAGUIRE. A Microspectrofluorometric Analysis of Nuclear and Chloroplast DNA in *Volvox* 441

LAURA SILVEN LEVY, RANJAN GANGULY, NIVEDITA GANGULY, AND JERRY E. MANNING. The Selection, Expression, and Organization of a Set of Head-Specific Genes in *Drosophila* 451

LAURA SILVEN LEVY AND JERRY E. MANNING. Expression of a Set of Head-Specific Genes during *Drosophila* Development 465

DAVID E. BURSTEIN AND LLOYD A. GREENE. Nerve Growth Factor Has Both Mitogenic and Antimitogenic Activity 477

ANNE D. ZURN. Identification of Glycolipid Binding Sites for Soybean Agglutinin and Differences in the Surface Glycolipids of Cultured Adrenergic and Cholinergic Sympathetic Neurons 483

Brief Notes

J. S. SHAH, E. PALACIOS, AND L. PALACIOS. Development of Crimp Morphology and Cellular Changes in Chick Tendons 499

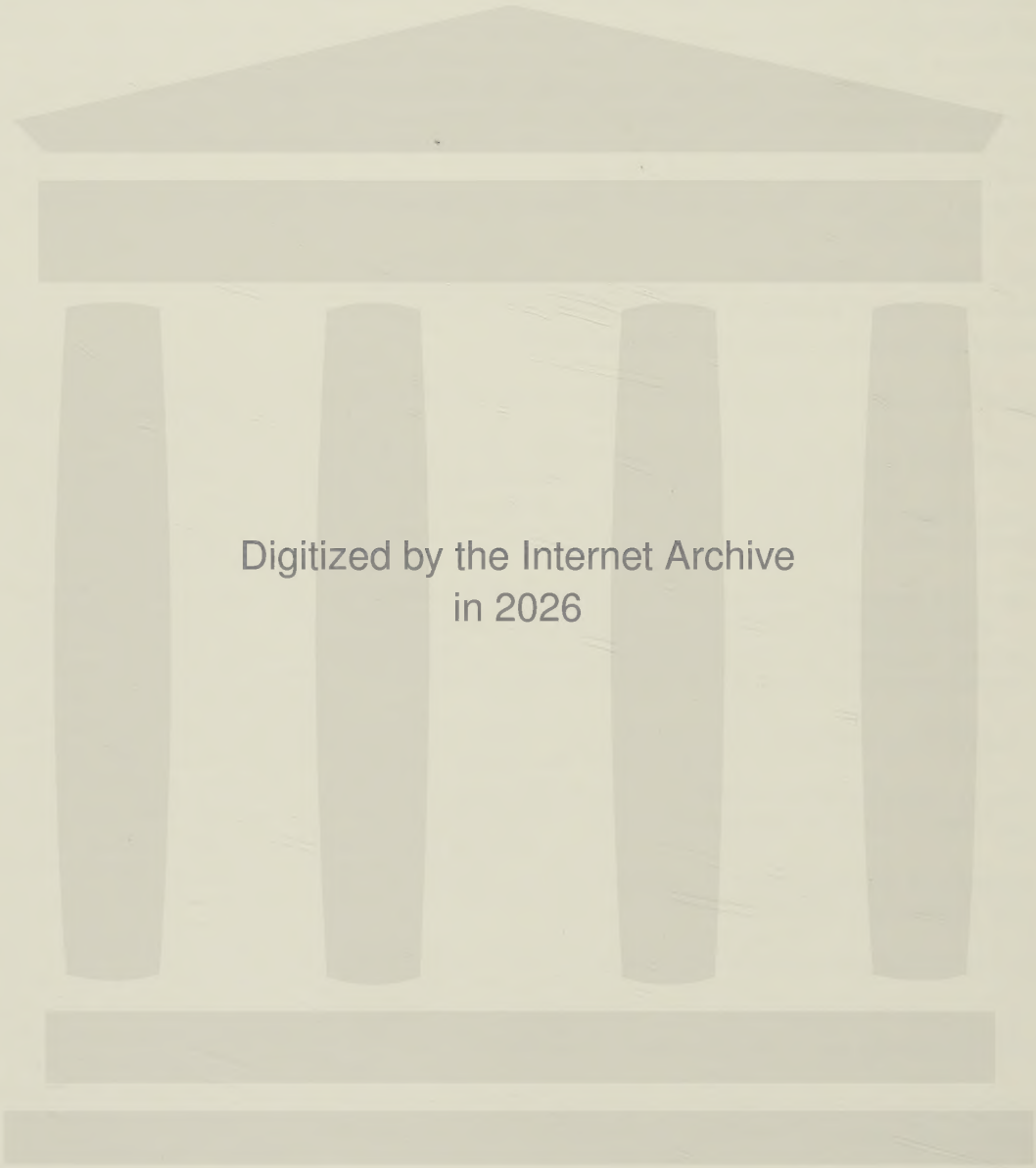
FREDERICK E. HARRINGTON AND DOUGLAS P. EASTON. A Putative Precursor to the Major Yolk Protein of the Sea Urchin 505

THOMAS C. MAYER. The Control of Embryonic Pigment Cell Proliferation in Culture by Cyclic AMP 509

Author Index for Volume 94 515

Cumulative Subject Index for Volumes 89–94 516

Cumulative Organism Index for Volumes 89–94 543


Digitized by the Internet Archive
in 2026

https://archive.org/details/developmental-biology_1982_94_contents

Information for Authors

Developmental Biology will publish papers on problems of development in the broadest sense. Embryonic and postembryonic development, growth, regeneration and tissue repair in plants and animals, and the analysis of these phenomena at the molecular and cellular levels are topics suitable for the journal. Papers on reproductive biology, aging, and teratology will be published only when they bear on developmental mechanisms of general interest. Papers are sought that employ the techniques and concepts of many disciplines including those of biochemistry, biophysics, cytology, experimental morphogenesis, genetics including cell genetics, immunology, neurobiology, physiology, and microbiology. In all areas, analytical rather than descriptive studies will be favored.

Original papers only will be considered. Submission of a manuscript implies the authors' assurance that the same work has not been and will not be published nor is presently submitted elsewhere, and that all persons listed as authors have given their approval for the submission of the paper; further, that any person cited as a source of personal communications has approved such citation. Explicit proof of these implied assurances may be required at the Editor's discretion. Articles and any other material published in *Developmental Biology* represent the opinions of the author(s), and should not be construed to reflect the opinions of the editor(s), the publisher, or the Society of Developmental Biology.

Authors submitting a manuscript do so on the understanding that if it is accepted for publication, copyright in the article, including the right to reproduce the article in all forms and media, shall be assigned exclusively to the Publisher. The Publisher will not refuse any reasonable request by the author for permission to reproduce any of his or her contributions to the journal.

Articles usually do not exceed 15,000 words and must be preceded by an abstract of about 200 words that should be fully intelligible by itself. Brief notes are 2500 words or less, including the bibliography, and should have an abstract of less than 100 words. All papers will be published in English.

Manuscripts should be concise. Full documentation of results in support of conclusions should be combined with maximum brevity compatible with clarity. The discussion section should relate the present work to previous knowledge but should not be expanded into a review of the field. The standard order of sections is: abstract, introduction, materials and methods, results and discussion. Combined results and discussion may be used. In the manuscript acknowledgment, references, footnotes, tables, and figure legends should follow the discussion in that order. All pages of the manuscript should be numbered consecutively and typed double-spaced throughout. Authors should provide a running title of 35 letters and spaces or less. Use footnotes sparingly. Cite them with superscript numbers and type them on a separate sheet. With rare exceptions do not italicize for emphasis.

In the Methods section, authors should draw attention to any particular chemical or biological hazards that may be involved in carrying out the experiments described. Any relevant safety precautions should be described; if an accepted code of practice has been followed, a reference to the relevant standards should be given.

Abbreviations and units should be used consistently. Consult the lists published in the *Proceedings of the National Academy of Sciences (U. S. A.)* the *Journal of Biological Chemistry*, and *Biochemistry* for standard abbreviations which need not be defined. Collect all abbreviations into a footnote and refer to it at the first use of an abbreviation. The use of units should follow the Système International. Use prefixes, e.g., μM, not 10^{-6} M. Note that *M* stands for molar, not mole. Use hr, min, sec, rpm, and cpm without definition, without a period, and without an "s" in the plural (i.e., 20 min).

Figures should be numbered consecutively in the order of their appearance and each should have a descriptive legend. Mark all figures with the author's name.

Line drawings should be made with India ink on smooth white paper or professional-quality drafting paper. Do not submit original line drawings larger in size than 13 × 10 in.; instead enclose smaller prints. Good quality prints are acceptable in any case. Drawings will be reduced as much as is compatible with the complexity of the figure, usually to column or page width. The lettering should be large enough to be at least 1.5 mm high after reduction.

Photographs should be the actual size for reproduction and labeled with letters 2 to 4 mm high. Figures should be planned to fit column (3.5 in., 89 mm) or page width (7.25 in., 184 mm); the depth of each column is 9 inches (228 mm). Sets of micrographs submitted in combinations up to 8 × 10.5 inches (203 × 267 mm) in size usually will be reproduced without reduction. For the best reproduction, provide clear, sharp, glossy prints with adequate contrast. The best results will be obtained if authors match the contrast and density of all figures appearing on a single plate. Figures that are to appear together as one plate should be mounted on cardboard or paper as close together as possible. The printer will place thin white lines between the figures on each plate. Providing an overlay that indicates the most critical areas of the micrograph will aid in en-

suring high-quality reproduction. Give magnifications in the legends or indicate them with a scale marker on the photograph.

The second copy of each manuscript must include good-quality glossy prints of all photographs. Two reviewer's copies should be submitted when originals are oversized or mounted on heavy cardboard.

The author will defray the expense of reproducing color figures.

Tables should be retyped on separate pages and numbered consecutively with Arabic numerals, and each should have a concise heading.

References to the literature should be cited as: Doe (1965) has observed that . . . ; (Doe, 1955); Doe *et al.* (1960) should be used in the case of articles with more than two authors. Use suffixes a, b, etc., following the date to distinguish two or more works by the same authors in the same year (Doe, 1960a,b). Numbered references will no longer be accepted. Arrange literature citations in the bibliography according to the surname of the author, using the following styles:

Hilfer, S. R., and Searls, R. L. (1980). Differentiation of the thyroid in the hypophysectomized chick embryo. *Develop. Biol.* **79,** 107–118.

Markert, C. L., and Papaconstantinou, J., eds. (1975). "The Developmental Biology of Reproduction." Academic Press, New York.

Spiro, R. G. (1972). Study of the carbohydrates of glycoproteins. *In* "Methods in Enzymoloy" (V. Ginsburg, ed.), Vol. 28, Part C, pp. 3–43. Academic Press, New York.

Abbreviate journal titles according to *Chemical Abstracts' Service Source Index.*

Page proofs rather than galleys will be sent. This speeds production. Detailed instructions will be sent with proofs. A quick response and minimal changes on proof are imperative to maintain schedules.

Features will include announcements of meetings and courses in the field of developmental biology, and some meeting reports. Persons interested in preparing meeting reports are encouraged to contact the Editor.

To submit a manuscript, send two copies to Anthony P. Mahowald, Editor, Developmental Biology Center E653, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106, Tel (216) 368-6673. Indicate the name, address, and telephone number of the author who should be contacted in editorial matters.